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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR   | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|------------------------|---------------------|------------------|
| 10/576,231   | 04/14/2006  | Atsushi Yabe           | 4700.P0327US        | 7188             |
| 23474 7590 05/09/2008<br>FLYNN THIEL BOUTELL & TANIS, P.C.<br>2026 RAMBLING ROAD<br>KALAMAZOO, MI 49008-1631 |             |                        |                     |                  |
| EXAMINER<br>BAREFORD, KATHERINE A  |             |                        |                     |                  |
| ART UNIT<br>1792   |             | PAPER NUMBER           |                     |                  |
| MAIL DATE<br>05/09/2008  |             | DELIVERY MODE<br>PAPER |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/576,231

**Applicant(s)**

YABE ET AL.

**Examiner**

Katherine A. Bareford

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 4/14/06

**DETAILED ACTION**

1. The preliminary amendment of May 15, 2006 has been received and entered. With the entry of the amendment, claim 4 has been canceled, and claims 1-3 and 5 are pending for examination.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5 no positive recitation of actually performing the plating onto a substrate is provided.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Amelio et al (US 4655833).

Amelio teaches an electroless copper plating solution. Column 2, lines 5-15. The plating solution contains a water-soluble nitrogen containing polymer. Column 2, lines 5-15 and 40-45.

Claim 2: the water soluble nitrogen containing polymer can be a polyacrylamide. Column 2, lines 5-15 and 40-45.

Claim 5: a copper plating method is provided using the electroless copper plating solution with the water soluble nitrogen containing polymer. Column 4, lines 35-50.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Japan 03-287779 (hereinafter '779).

'779 teaches an electroless copper plating solution. Abstract. The plating solution contains a water-soluble nitrogen containing polymer. Abstract (polyethyleneimine would be water soluble as indicated by claim 2).

Claim 2: the water soluble nitrogen containing polymer can be a polyethyleneimine. Abstract.

7. Japan 03-287779 was provided by applicant with the IDS statement of April 14, 2006.

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amelio et al (US 4655833).

Amelio teaches all the features of this claim, as discussed in the 35 USC 102(b) rejection using Amelio above, except the precise molecular weight, and Mw over Mn ratio.

However, Amelio does teach that the water soluble nitrogen containing polymer used can be, for example, Reten 210, Reten 220 or Reten 300 (column 2, lines 40-68) and

that such polymers have a relatively high molecular weight of about 50,000-1,000,000 or more (column 3, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Amelio to use a water soluble nitrogen containing polymer with a molecular weight above 100,000, because Amelio teaches a range of 50,000 -1,000,000 or more and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). As to the ratio of Mw over Mn, it is the Examiner's position that for the purposes of consistency and reproducibility it would have been obvious to use polymers of the same molecular weight, which would provide that the molecular weight and the number average molecular weight would be the same number, and therefore provide that Mw/Mn would be one, within the claimed range.

11. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 03-287779 (hereinafter '779).

'779 teaches all the features of these claims, as discussed in the 35 USC 102(b) rejection using '779 above, except the precise molecular weight, and Mw over Mn ratio (claim 3) and the actual plating (claim 5).

However, '779 does teach that the water soluble nitrogen containing polymer (polyethyleneimine) used have a molecular weight of several hundred to several hundred thousand. Abstract

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '779 to use a water soluble nitrogen containing polymer with a molecular weight above 100,000, because '779 teaches a range of several hundred to several hundred thousand and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). As to the ratio of Mw over Mn, it is the Examiner's position that for the purposes of consistency and reproducibility it would have been obvious to use polymers of the same molecular weight, which would provide that the molecular weight and the number average molecular weight would be the same number, and therefore provide that Mw/Mn would be one, within the claimed range. As to the plating with the provided copper plating bath, it is the Examiner's position that it would have been obvious to use an electroless copper plating bath to actually plate copper, as that is the purpose that the bath is provided for.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/  
Primary Examiner, Art Unit 1792